

- **HINDE, David Derek**

B.Eng., QUT

Thesis Title: Corona Discharges on the Surfaces of High Voltage Composite Insulators

Supervisors:

Aspro Professor David Birtwhistle (<i>P</i>)	Principal Supervisor
Dr Gregory Anthony Cash	Associate Supervisor
Profe Graeme Allan George	Associate Supervisor

Citation:

This thesis describes the results of fundamental experimental studies made into degradation of silicone rubber insulation - an important new material used in high voltage power lines and substations. The main focus of the research has been on examining how ageing is affected by corona discharges on insulator surfaces. New observations of corona on both dry and wet insulation surfaces have provided many new insights into how damage can occur on clean and polluted surfaces. Major contributions have been the identification of the double pulse structure of positive streamer current, and the first consistent measurements of partial discharges at the water-air-insulation triple junction. Spectroscopic studies of atoms and radicals observed on wet surfaces where said by one examiner to be “compelling” and to offer “a means to examine material deterioration of polymeric insulation in marine and industrial environments”.